LETTERS TO THE EDITOR

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Holly Berries and Rare Birds

WITH reference to the statement which has been made by Mr. McNab of the Botanic Gardens in Edinburgh, corroborated by Mr. Darwin and others in England, that holly berries are, this season, extremely scarce, it may be interesting to note that so far as this district is concerned, the holly is, on the contrary, unusually rich in fruit. For many years I have never seen so abundant a crop, and I suspect this will be found to be the case all over the West Highlands.

We have had a most unusual winter, from its extreme mildness, skies almost continually densely overcast, and the persistence of east wind. The rainfall for 1876 was not much in excess of our average—fifty-three inches. We have had little snow, and only one severe gale of wind. But the barometer has been frequently very low, in sympathy with the destructive gales both to the north and to the south of us.

I don't know whether it is due to any of those circumstances of climate that we have had two very rare birds—the great grey shrike, and the greater spotted woodpecker.

The shrike was seen here about twelve years ago, on one occasion; and a specimen of the woodpecker was killed about fifty years ago. About the time when the shrike was seen here on the last occasion, several specimens were shot in different parts of the low country; but this winter I have seen no case mentioned of the bird being observed. ARGYLL

Inveraray, January 20

On the Southern Tendency of Peninsulas

THE attention of those interested in physical geography has long been attracted to the remarkable fact that almost all the great peninsulas of the earth trend southwards, and that the majority, at any rate, have an island, or group of islands, at their southern extremity. Thus Mrs. Somerville, calling attention to this, says:—"The tendency of the land to assume a peninsular form is very remarkable, and it is still more so that almost all the peninsulas trend to the south, circumstances that depend on some unknown cause which seems to have acted very extensively. The continents of South America, Africa, and Greenland, are peninsulas on a gigantic scale, all directed to the south; the peninsula of India, the Indo-Chinese peninsula; those of Korea, Kamtchatka, Florida, California, and Aliaska, in North America; as well as the European peninsulas of Norway and Sweden, Spain and Portugal, Italy and Greece, observe the same direction. . . .

"Many of the peninsulas have an island, or group of islands at their extremity, as South America, which is terminated by the group of Tierra del Fuego; India has Ceylon; Malacca has Sumatra and Banca; the southern extremity of Australia ends in Tasmania, or Van Diemen's Land; a chain of islands runs from the end of the peninsula of Aliaska; Greenland has a group of islands at its extremity; and Sicily lies close to the southern termination of Italy."

Now may we not correlate this with the remarkable preponderance of ocean in the southern hemisphere, which M. Adhémar has suggested to be due to the alteration of the centre of gravity of the earth, caused by the great southern cupola of ice? However that may be, the preponderance of water in the south is very remarkable. Taking each parallel as unity, the proportion of sea is as follows:—

60° North	0·353	10° South	0·786
50° ,, ...	0·407	20° ,, ...	0·777
40° ,, ...	0·527	30° ,, ...	0·791
30° ,, ...	0·536	40° ,, ...	0·951
20° ,, ...	0·677	50° ,, ...	0·972
10° ,, ...	0·710	60° ,, ...	1·000
0° ,, ...	0·771		

Without at the present moment entering upon any discussion as to the cause which has produced this remarkable result, the fact at any rate seems to throw some light on the southern direction of promontories, for which, as far as I am aware, no cause has yet been suggested. For let us suppose three tracts of land, each trending north and south, each with a central backbone, but one with a general slope southwards, one with a northward slope, and the third without any. The first will, of course, form a peninsula pointing southwards, because as we proceed southwards, less and less of the surface will project above the water, until nothing but the central ridge remains. The second tract, however, would also assume the same form, because, though by the hypothesis the land does not sink, still the gradual preponderance of water would produce the same effect.

If, moreover, the central mountain ridge, as is so generally the case, presents a series of detached summits, the last of such elevations which rises above the water level will necessarily form an island, situated, with reference to the land, like those mentioned by Mrs. Somerville.

Lastly, in the third case, the gradual diminution of water would tend to neutralise the effect of the slope, and if the two were equal, the land would form, not a pointed peninsula, but an oblong tract.

If there is anything in the above suggestions it will throw some light on the southern trend of peninsulas by bringing them under the general law to which is due the remarkable preponderance of ocean in the southern hemisphere. JOHN LUBBOCK

Down, Kent

Basking Shark

IN looking over some old numbers of NATURE, which I had not been able to read, owing to my absence from Florence, I came across Dr. E. Perceval Wright's interesting article on the basking shark, *Selache maxima* (NATURE, vol. xiv. p. 313), which I read with much pleasure, and on which I would beg to offer a few observations, which I hope will not be considered as coming too late.

First and foremost, Dr. Wright in justly lamenting the absence of information on a most strange and singular form of Elasmobranch fish, far from being rare on the British coasts, entirely omits to mention the exhaustive and most important memoir on the genus *Selache*, published by Prof. P. Pavesi, of Pavia, in the *Annali del Museo Civico di Storia Naturale di Genova*, edited with so much ability, and mostly at his own private expense, by my friend, the Marquis G. Doria. In Italy we usually take much pains to be *au jour* of foreign scientific literature, and we are striving to do our best to form a good scientific literature of our own, therefore we may be excused if we feel anxious that it should be more generally known and appreciated abroad. Doria's *Annali* include most important zoological papers, and form already eight big volumes, which have cost the editor no small amount of pains and money; and it is most desirable that they should not escape the notice of working zoologists out of Italy. Indeed I may refer to some of the leading English zoologists, and more especially to my friend Dr. P. L. Sclater, to corroborate my assertion.

Prof. Pavesi's paper, "Contribuzione alla Storia Naturale del genere Selache," is continued in the sixth volume of Doria's *Annali*, published in 1874; and had Prof. Wright read it, he would have discovered that the very conflicting opinions on *Selache*, *Polyprosopus*, and *Pseudotriacis* had been most carefully examined, discussed, and sifted, that all the anatomical and zoological labours of well known and little known *savants* on the subject had been carefully analysed and critically studied by Prof. Pavesi, who in illustrating in a very lucid and minute manner the zoological affinities and anatomical peculiarities of a fine specimen of *Selache* captured at Lerici, near Spezia, on April 25, 1871, has succeeded in solving the Gordian knot which confused the true relations of the three genera above cited, and refers those strange Selacoids to two forms: *Selache maxima* (Gunn) and *S. rostrata* (Macri). To the latter species, characterised by a most singular snout, is to be referred the Lerici specimens, now in the Museum of the University of Genoa; one captured near Reggio (Calabria) in May, 1795, and described by Macri as *Squalus rostratus*; and lastly, the basking sharks, captured on the Western British coasts, and described in an incomplete manner as *Polyprosopus* by Couch, and as *Squalus* or *Cetorhinus rostratus* by Cornish.

Prof. Pavesi has largely illustrated the anatomy of *S. rostrata* in his memoir, especially the skeleton of the Lerici specimen which is preserved entire in the Genoa Museum; he also describes and figures the strange baleen-like fringes which adorn the branchial arches. HENRY J. GIGLIOLI

Florence

[We have also received a communication from Rev. M. Harvey, of St. John's, Newfoundland, mentioning that a spe-

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cimen of the basking shark had been captured entangled in some salmon nets off the south shore of Conception Bay in August, 1876. Mr. Harvey thinks that the shark was probably feeding on caplin, as the Bay was full of shoals of this little fish. The teeth in his dried specimen were about a quarter of an inch in length, though probably in the fresh state they hardly projected beyond the gums. For other details we would refer Mr. Harvey to Prof. Pavesi's memoir quoted above, with the hope that he may still further continue his interesting investigation of the fauna of Newfoundland.—ED.]

The "Challenger" Collections

IT is a rather remarkable proof of the increased interest taken in natural science, that no one worth listening to has ventured to make a remark in disparagement of the *Challenger* expedition, or to utter a growl at the liberal support accorded to it from the national fund. This goes far to show that extensive classes of the community are able in various degrees to appreciate the objects and results of the expedition. One of these results is the collection of specimens in natural history. It is on the final destination of this collection that I wish to offer a suggestion. Within my own recollection it would have been difficult to name half-a-dozen public museums in Great Britain and Ireland where a series of objects, such as could be formed out of the duplicates in the *Challenger* collection, would be sure of meeting with a suitable reception. The number now would probably exceed a score, exclusive of museums in public colleges and schools; at a rough estimate the total number may be put down as at least forty. The supporters of these museums, as public tax-payers, have willingly contributed towards the expenses of the late noble and successful expedition; but it is not alone on this ground that I would respectfully urge a recognition of their claim to share in the treasure trove, but rather on the ground of the impulse that might be given to the study of natural science, and to the cordial support of plans for further expeditions of a like character.

For reasons which will be obvious on reflection, it would be a great saving of time and trouble to those engaged in the arrangement of the specimens if public museums were invited to send in, on or before a certain fixed day, to some central board, an expression of their desire to participate in the benefit of the *Challenger* collections, at the same time stating the grounds of their claim, and the department in natural science in which they would prefer to receive contributions. The examination and determination of these applications must be a work of time, therefore the sooner the plan is set on foot the better. Monographs will probably be published, and museums will purchase them; but they cannot buy the specimens, and the value of the monographs to any institution will be increased tenfold by the possession of authenticated specimens of some of the species described. Of course there are universities and other centres of scientific teaching which must come first; but I respectfully and earnestly protest against drawing the line of exclusion too stringently. There is now a great national opportunity for encouraging in a substantial way the instruction given in lectures and science classes, which often languishes for want of illustrations. I know of stores of natural history treasures. If only they had been dispensed in wisely apportioned nuclei, how valuable, by this time, might have been the collections accumulated round them. If selection amongst the claimants be impossible, might not series be made up for loan or sale? It will be unworthy of the way in which the *Challenger* work has been done, if even a single Rhizopod shall find its resting-place in a dust-hole.

HENRY H. HIGGINS

Traces of Pre-Glacial Man in America

IN NATURE, vol. xv. p. 87, you have given an outline of a paper by Prof. Hughes, read before the Cambridge Philosophical Society, "in which he criticised the evidence offered to support the view that man existed on the earth during or before the glacial period." As concerning the question of the antiquity of man in North America, I would first call attention to the remarks on this subject by the late Prof. Jeffries Wyman, the most cautious and careful of archæologists, who writes:[1] "The ancient remains found in California, brought to the notice of the scientific world by Prof. J. D. Whitney, and referred by him to the Tertiary period, &c," to which is added a footnote, that "*the ample evidence collected by Prof. Whitney, but not yet published, substantiates the opinion given above with regard to age. The omission of the Calaveras skull would not weaken the evidence as to the existence of man in the Tertiary period in California.*" Inasmuch as the Glacial period occurred at the close of the Tertiary period, if Prof. Whitney's discoveries are conclusive, as to this side of the Atlantic, does it not follow that man must have existed, certainly in Asia, prior to the glacial epoch? We are assured by all ethnologists, that man migrated from Asia to America, and now we are offered proofs of his American sojourn, of a date preceding the occurrence of glacial conditions. Speaking of the Eskimo, Dr. Peschel remarks[1]: "The identity of their language with that of the Namollo, their skill on the sea, their domestication of the dog, their use of the sledge, the Mongolian type of their faces, their capability for higher civilisation, are sufficient reasons for answering the question, whether a migration took place from Asia to America, or conversely from America to Asia, in favour of the former alternative; yet such a migration from Asia, by way of Behring's Straits, must have occurred at a much later period *than the first colonisation of the New World from the Old one.*" Again, in speaking of the Red Indians, he remarks[2]: "It is not impossible that the first migrations took place at a time when what is now the channel of Behring's Straits was occupied by an isthmus. The climate of those northern shores must then have been much milder than at the present day, for no currents from the Frozen Ocean could have penetrated into the Pacific." This reference to a milder climate must necessarily refer to the genial warmth of Pliocene times; for scarcely under other circumstances can we find time enough to explain the various phases of lost civilisations, especially in South America. Whether or not the supposed traces of glacial and pre-glacial man in Europe be really such—if the archæology of North America has, so far, been correctly interpreted—then, unless they have been totally destroyed, unquestionable traces of such early man will be ultimately discovered; but if such "finds" should never gladden English archæologists, the earnest workers in America have rendered it certainly true that in Asia, and doubtless in Europe, man did exist during the closing epoch of the Tertiary period, if there is, indeed, no error in the supposition that our American aborigines migrated from the Old World.

CHAS. C. ABBOTT

Trenton, N.J., U.S.A., December 16, 1876

Glacial Drift in California

IN a recent letter from my brother residing in California, he describes a curious moraine or drift formation, which may, perhaps, be as new to some of your readers as it was to myself. His description, with a few verbal alterations, is as follows:—

"The plains for a distance of from five to twenty miles from the foot of the Sierra Nevada are covered with what are locally termed 'hog-wallows.' The surface thus designated may be represented on a small scale by covering the bottom of a large flat dish with eggs distributed so that their longer axes shall lie at various angles with one another, and then filling the dish with fine sand to a little more than half the height of the eggs. The surface of the sand and of those parts of the eggs which rise above it, gives a fair representation of the 'hog-wallow' land. The mounds, which are represented by the eggs, vary from two to five feet in height, and from ten to thirty feet in diameter, some being nearly circular, some oval, while others are more irregular in shape. Those nearest the foot-hills are the largest, and they gradually diminish in size as they extend out into the plain. They are composed of gravel and boulders of irregular sizes, generally covered with a surface-soil, but sometimes bare. These tracts, which are very extensive in some parts of the State, have been till lately unexplained; but it is now generally admitted that they are due to the retreat of the broad foot of the glacier, leaving behind it a layer of *débris* or moraine-matter, which has become arranged in its present form by the innumerable rills that issued from the retiring sheet of ice. A living glacier has lately been discovered far up in the Sierra Nevada, near the head waters of the San Joaquim River."

Perhaps some of your geological readers may know if any similar formations occur elsewhere; and may favour us with their views as to whether so extensive and uniform a deposit could be due to a retreating glacier alone, or would not rather require the agency

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[1] "Fresh Water Shell-mounds of Florida." Fourth Memoir of Peabody Academy, Salem, Mass., U.S.A., December 1874, p. 45.

[1] "Races of Man," by Dr. Oscar Peschel. New York, 1876, p. 396.

[2] *Ibid.*, p. 400.

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